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# ***Agricultural Biotechnology: Savior or Scourge?***

**MICHAEL F. JACOBSON**

*Center for Science in the Public Interest  
Washington, DC*

I am grateful for the opportunity to participate in this important meeting. It comes at a time of great controversy over biotechnology, and I hope that the audience and speakers can identify some areas of agreement.

For those of you who are not familiar with the Center for Science in the Public Interest, it is a nonprofit consumer-advocacy organization that, since 1971, has focused on food safety and nutrition. Our activities have touched most Americans lives, because in 1990 we led the efforts to win passage of laws mandating the Nutrition Facts food label and a federal definition of “organically grown” foods. We are supported largely by the 850,000 subscribers to our *Nutrition Action Healthletter*, along with foundation grants. We do not accept funding from government or industry.

Though CSPI sometimes has been accused of being anti-everything in the world of food, from fettucine Alfredo to olestra to McDonald’s french fries, we have a decidedly middle position on genetically engineered foods. We believe that, if used properly, engineered crops could greatly benefit farmers, consumers, and the environment. They hold the promise of increased yields, reduced use of pesticides, lower costs, and better nutrition. Indeed, some of those benefits already have been partly realized. But, if misused, biotech foods could cause great harm.

Biotechnology is reaching a crossroads, where public opposition may become so great that no farmer, food manufacturer, or retailer will want to market a food with biotech ingredients. The biotech industry, by and large, has insisted that genetically engineered foods are sufficiently regulated and perfectly safe. That posture simply is not flying in the age of StarLink™ corn, mad cow disease, and the Internet.

Critics are generating many questions about biotechnology, ranging from accusations of potential health and ecological catastrophes to monopolization of the seed industry by a few companies. Currently, genetically engineered crops benefit primarily the seed and chemical companies and farmers, not consumers. When benefits are enjoyed by one party, but possible risks are borne by another, it is a formula for suspicion. In such an environment, it behooves those who hope to realize the potential benefits of biotechnology to address valid concerns, debunk red herrings, and build long-term public confidence. One key step would be to establish strict rules to protect the environment and ensure safety and choice to consumers.

Before I address the concerns, let me emphasize that farmers, the environment, and environmentalists should draw some measure of satisfaction from existing benefits of genetically engineered crops and the absence of known health and environmental problems.

- The widespread use of Bt cotton has dramatically reduced the use of organophosphate pesticides. According to the National Center for Food and Agriculture Policy, Bt cotton in 1999 resulted in 2.7 million pounds less use of chemical insecticides and 15 million fewer applications of insecticides. Cotton production increased by 260 million pounds per year, and net revenues increased by an estimated \$99 million. That is a tremendous boon to farmers and presumably to non-target species, including insects and the birds and other organisms that feed on them.
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- Herbicide-tolerant soybeans reduced weed-control costs by \$216 million in 1999, and reduced herbicide applications by 19 million. Although biotech soybeans have led to a great increase in the use of glyphosate herbicides, those herbicides appear to be much safer than some that they replace. No-till farming, which herbicide-tolerant crops encourage, should reduce soil erosion.
- Bt corn saved an estimated 66 million bushels of corn from European corn borer in 1999. Also, Bt corn should have lower levels both of insect damage and of some mycotoxins.
- Genetically engineered papayas provide Hawaiian farmers an effective new means of coping with the papaya ringspot virus, which has been decimating crops.

Other crops could be providing similar benefits:

- Bt sweet corn and potatoes could dramatically reduce insecticide use.
- Apples resistant to fire-blight bacteria could benefit farmers in the Northeast.
- Herbicide-tolerant sugar beets could reduce soil erosion.

However, farmers and processors are unwilling to plant or accept those crops for fear of consumer backlash.

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## **SAFETY CONCERNS**

From the point of view of the *consumer*, the key question about biotech foods is, “Are they safe?” Many consumers are leery because they do not know what biotech foods are, and the term “genetically modified” sounds scary.

To date, of course, biotech foods have not caused any known health problems whatsoever. Though still in its infancy, biotechnology’s record of safety is reassuring. To be honest, though, it probably would be impossible to identify many long-term problems, such as immunotoxicity, carcinogenicity, or neurotoxicity, with current testing procedures.

One of the obvious concerns is whether engineered foods might cause allergic reactions. Known allergens are easy to identify. However, if a protein to which people have had only limited exposure were introduced into foods, one could not state definitively that it would not cause any allergic reactions.

Another concern is that levels of naturally occurring toxins in plants might be increased. Again, known toxins are easy to assay. But it is not inconceivable that a genetically engineered food would display a novel toxicity, such as by activating a “silent” gene or unexpectedly altering a metabolic pathway. Finally, some scientists have speculated that there is a very small risk that transgenic foods could cause a catastrophe: anything from being carcinogenic to introducing prions causing something like Creutzfeldt-Jakob disease. While speculative, those concerns indicate the need for a rigorous, but not suffocating, regulatory scheme, including appropriate testing standards.

## ECOLOGICAL CONCERNS

While *consumers* may focus on *safety*, transgenic crops raise diverse environmental questions. Whether it is the effect of Bt corn on monarch butterflies and other non-target organisms, the spread of genetically engineered characteristics to wild relatives, or the development of pesticide resistance in insects or weeds, GM crops deserve the closest scrutiny. After all, the self-propagating nature of living organisms—be they fish or wheat—means that once a problem occurs, it might be uncontrollable. The United States Department of Agriculture (USDA) and the Environmental Protection Agency (EPA) are responsible for anticipating and preventing environmental problems caused by GM crops. But serious questions have been raised about the rigor of those agencies' scrutiny and judgment. For example, last year a committee of the National Academy of Sciences (NAS) identified numerous ways in which the system should be strengthened. And last March an EPA Science Advisory Panel concluded that data requirements for the effects of Bt corn on non-target insects were not complete, leading the EPA to ask companies for new studies.

The USDA recently established an Advisory Committee on Agricultural Biotechnology to provide independent advice on environmental concerns, and commissioned the NAS to conduct an ongoing review of its (USDA's) regulatory process. Those committees should help guide the USDA cautiously into the future and increase public confidence in agricultural biotechnology.

## REGULATION – SAFETY

Most Americans, I believe, are open to biotechnology, but want assurances that the foods are safe and that crops and other organisms will not adversely affect the environment. We need to upgrade the regulatory system to respond to these concerns.

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Although that process has not resulted in any health concerns, it invites criticism. After all, the process largely transpires behind closed doors and does not result in formal approval. In contrast, the FDA has a mandatory, albeit secret, process for approving transgenic animals—such as genetically engineered fish—and the EPA has a mandatory, relatively open, process for evaluating transgenic pest-protected plants, such as Bt corn. The USDA, too, has a relatively open process for considering whether new crops may adversely affect agriculture.

The FDA recently proposed a mandatory review process to replace its current voluntary system for evaluating GM crops. Importantly, the new process would ensure that all new food crops are scrutinized. Also, the new process would be open to public scrutiny, with most company documents being placed on the public record. However, because the FDA has not provided formal safety-testing guidelines, and because companies propose safety tests to the FDA, the process gives the appearance of being driven by industry's decisions. Moreover, the new review process still would not result in formal approval. Instead, the FDA would say, "We have no further questions." While that approach might not result in any safety questions, it would still invite the accurate criticism that transgenic crops are not formally approved in the United States, and that, unnecessarily, diminishes public confidence.

Because the FDA has been unwilling to argue that it has the authority to formally approve all biotech foods, Congress should pass a law to mandate that it does so. New legislation would distinguish transgenic organisms from existing categories, such as "generally recognized as safe" substances, incidental additives, or food additives. Last year, Congressman Dennis Kucinich and Senator Richard Durbin introduced different bills to establish a formal approval process. Those bills provide good starting points for debate. Passage of such legislation could reduce public controversy.

New legislation should require each proposed new GM crop or animal to be supported by a petition to the FDA. Importantly, such petitions would be public documents, enabling any concerned party to scrutinize the data and provide input to the agency. The end point would be the publication of a formal approval in the *Federal Register*. That notice would explain the agency's thinking and respond to any concerns submitted by outsiders to the agency.

Although food and seed companies support “mandatory consultations,” currently they object to a formal approval process. They contend that the FDA could take years to make decisions. That problem might be soluble simply by requiring that a decision be made within a specified period of time. If necessary, user fees or ordinary appropriations could provide the FDA with adequate staffing to make timely decisions. Industry also fears that legislation on biotech approvals might be saddled with all sorts of amendments. Frankly, I fear the same thing: that industry would use the bill as a vehicle for achieving other goals. I would hope, though, that voluntary agreements and astute management of the bills would restrict the content to a mandatory approval process.

Representative Kucinich’s bill incorporates several other sensible measures. It would ban common or severe allergens from biotech foods, phase out antibiotic-resistance marker genes, and have the NAS’s Institute of Medicine evaluate FDA’s system for evaluating biotech foods. One question that should be studied carefully, as the NAS recommended last year, is whether sub-chronic or chronic toxicity animal-feeding tests should be conducted on transgenic foods. New legislation also should fund research at the National Institutes of Health or the FDA to develop better means of predicting allergenicity.

The StarLink™ episode revealed two additional problems. First, farmers and seed producers apparently lack the ability to ensure that corn—or other crops—grown for feed will not appear in food. Hence, as Kraft Foods and others have recommended, the FDA and EPA should not approve biotech crops for animal feed if they are not also approved for human food. Second, the FDA and USDA lack the authority to recall products, engineered or not. Senators Tom Harkin and Byron Dorgan have introduced legislation to give those agencies recall authority, but that bill has not moved through Congress.

Those all are simple, sensible steps that the biotech and food-manufacturing industries should be able to accept and, indeed, to support.

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## **REGULATION – LABELING**

The second component of an improved regulatory scheme concerns the labeling of genetically engineered foods. Concerns about labeling range from those about allergies to ethics to the environment.

In response to environmental groups, the European Union, Australia and several other countries are requiring labeling of foods containing genetically engineered ingredients. The FDA says that it is not obligated to require foods containing biotech ingredients to state “Contains Genetically Engineered

Ingredients,” or “GM,” somewhere on the label. Instead, the FDA recently defined a *voluntary* labeling scheme that it believes will be useful to consumers. It has described situations in which terms like “does not contain genetically engineered ingredients” may be used on labels. Consumers concerned about GM foods would then have a choice. I hope that the FDA will anticipate future developments by providing guidance to ensure that labels claiming that a transgenic product offers benefits—such as “reduces the use of pesticides” or “increases nutritional value”—are honest. Overall, the FDA’s labeling guidance represents a small improvement, but does not satisfy those who want mandatory labeling. And even the FDA admits that very few foods, other than those grown organically, will sprout labels.

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Some critics hope that GM labeling will be the kiss of death for engineered foods and agricultural biotechnology. But it may be that the public is simply not going to have confidence in biotechnology if companies are not more open about their use of transgenic ingredients. Indeed, the FDA’s own focus-group research revealed intense feelings around the marketing of genetically engineered foods without special labeling.

To better understand the public’s interest in biotech labeling and how consumers might react to it, CSPI recently commissioned a national telephone survey of about 1,000 American adults.

First, two questions found that 62% to 70% of people say they would like engineered foods to be labeled. Those percentages, of course, are similar to many previous surveys indicating fairly broad support for biotech labeling.

We wanted to get beyond that first question and understand attitudes about labeling in greater detail.

The survey found that as the amount of the engineered ingredients in a food decreased, so does the desire for labeling. If labeling were required, 61% of those surveyed said that a whole food, such as a tomato, should be labeled. If a major ingredient, such as the wheat in Wheaties, was engineered, 53% said that that should be labeled. The percentage favoring labeling dropped to 42% for a minor ingredient, such as corn starch in a frozen dinner and to 38% for a food

containing soy oil that does not contain any other engineered material. Thus, if labeling were required, well under half of people wanted labeling when only small amounts of, or no, genetically modified material was present.

One thing about surveys that ask whether people want more information is that people indicate a desire for just about any piece of information about food production. Thus, based on two questions in our survey, 76% wanted labels to disclose the spraying of pesticides, and 66% wanted information on genetic engineering. But 43% wanted label statements on foods grown with practices that cause soil erosion, and 40% wanted the use of hybrid corn to be disclosed. It could be that most Americans know little about food production and are suspicious of any process or term they do not understand. One may interpret our survey as indicating that 40%, not 0%, should be considered the baseline when asking people if they want something on labels about growing practices.

Another question gave people four choices and asked them which one they would add to food labels, if they could add just one. Almost twice as many people, 31%, wanted labeling for pesticide residues as genetic engineering, 17%. Considerably fewer people, 8%, wanted imported wheat to be labeled, and 7% wanted processing contaminants to be declared.

Several questions indicate that support for labeling is not as deep as appears at first glance. We asked people how much extra they would pay for their family's food to have labels declare that foods were genetically engineered. About 50% of the people whose top labeling priority was genetic engineering, or who said that engineered foods should be labeled, would pay either nothing or only \$10 per year for that labeling. One in four respondents said they would pay \$50 per year or more for labeling. A small group of consumers, 12%, would pay \$250 a year or more to get labeling; those are the hard-core proponents of labeling. Thus, although most consumers may desire labeling of GM foods, relatively few appear willing to pay additional costs for that information. Of course, some people might want labeling, but feel that someone else — namely the food and seed industries — should bear the costs.

To better inform the public and decision makers, an agency like USDA's Economic Research Service should estimate the costs of different forms of GM labeling.

We next explored how people interpret label statements. About one-third of respondents believed that foods labeled "contains genetically engineered ingredients" are less safe or not as good as foods without labels. There was little difference if the term "biotechnology" was used instead of "genetically engineered." Conversely, about one-third of respondents believed that foods labeled "does *not* contain genetically engineered ingredients" are better than foods without such a label. Thus, if, as appears to be the case, there is no difference in safety or quality between conventional and GM crops, many consumers apparently would be deceived by labels that state "genetically engineered" or "not genetically engineered."



Those perceptions about safety, quality, or other matters carried over into buying behavior. Only about 40% of respondents said they would buy foods made with genetically engineered ingredients. It did not matter whether the foods were transgenic fruits and vegetables or processed foods that contained only minor ingredients that came from engineered crops. Clearly, considering the public's current views, no food manufacturer would market foods containing engineered ingredients if they had to put a statement on the label.

We also asked people if they would buy foods bearing other labels. Interestingly, while only 43% of the respondents said they would buy foods labeled "genetically engineered," about the same percentage said they would buy foods labeled as having been sprayed with pesticides, treated with plant hormones, or made from hybrid corn. Apparently, people have apprehensions about any unusual and suspicious-sounding statements on labels.

One thing our survey did not examine is the reaction to different kinds of labels. We left to the imagination of the respondents the prominence of the GM label on food packages. It would be worth exploring how differently people might perceive the term "contains genetically engineered ingredients" on the front of the package, the term "genetically engineered" embedded within the ingredient statement, and a small "GM" symbol somewhere on the front of the package. Our only finding in this area was that when GM labels stated "reduces pesticide use," the percentage of people who thought those foods were safer jumped from 7% to 21%. Still, about 30% of people continued to believe that the GM food was not as safe as other foods that might have been sprayed with pesticides.

If foods are to be labeled, Congress should give the FDA a clear mandate, because the FDA will not require such labeling on its own. In any case, though, whether label statements are mandatory or voluntary, such statements should not lead people to think that a food made *with* genetically engineered ingredients is inferior, or that a food made *without* genetically engineered ingredients is superior.

Labeling is a "catch-22" problem for industry. As long as engineered foods are not labeled, people will contend that the public's right to know is being short-changed and will criticize government and companies for hiding that information. If engineered foods were labeled, many people would not buy them, and so companies, not wanting to lose sales, will not market engineered foods with a label. Considering how negatively the public views the term "genetically engineered," I think that industry needs to be candid with consumers about the benefits and pitfalls of the technology. The food industry could lessen suspicions if it mounted a full-scale advertising campaign depicting hundreds of packaged and restaurant foods that contain ingredients from engineered crops. Those ads could explain the apparent safety and the environmental benefits, while acknowledging that safety can never be assured with absolute certainty.

## **REGULATION – ENVIRONMENT**

Probably the most likely problems concerning biotech products pertain not to consumer health but to ecological disruption. One major concern is that while the EPA stipulates that certain crops, such as Bt corn, be accompanied by refuges of conventional crops, no agency polices and enforces such critically important requirements. That must be corrected. Also, the NAS report on pest-protected plants made numerous specific recommendations, ranging from regulating viral coat proteins under the Federal Insecticide Fungicide and Rodenticide Act (FIFRA) to improving inter-agency coordination. All of those recommendations should be implemented.

The USDA is charged with ensuring that new crops do not become pests. But experience suggests that environmental reviews by the Animal and Plant Health Inspection Service (APHIS) have underestimated the potential for significant problems resulting from Bt corn's impacts on lepidopterans, from the weediness potential of herbicide-tolerant canola and virus-protected squash, and from the need for pest-resistance-management planning for Bt crops.

Despite the millions of acres planted with GM crops, APHIS has never prepared a full environmental impact statement (EIS) for any of the GM crops that it has approved. Full EISs would have led to better analysis and mitigation for any remaining questions.

To summarize: now is the time, while agricultural biotechnology is still young, for Congress and regulatory agencies to create the framework that would maximize the safe use of these products, bolster public confidence in them, and allow all of humankind to benefit from their enormous potential.

## **OTHER CONCERNS ABOUT AGRICULTURAL BIOTECHNOLOGY**

Aside from effects on the public's health and the ecosystem, agricultural biotechnology raises many other concerns. While it is impossible to explore each of these matters in detail, I will touch on various measures that would boost public confidence and help ensure that biotechnology is used wisely and productively.

Underlying many of the attacks on biotechnology is the question of whether a handful of giant companies will soon control the world's major crops and the technology itself. The briar patch of patent rights that affects Golden Rice exemplifies the extent to which private industry (and, in some cases, universities) has gained control over the technology. Also, it is clear that commercial interests focus on the largest and most profitable crops in the developed world—and then only on applications that are profitable—rather than those the primary purpose of which is to protect the environment.

To bring the greatest benefits to the most people, it is essential that the industrial nations sponsor more basic and applied research to ensure that new methods and products are in the public domain. Government-sponsored research also should address the needs of small farmers, consumers, and the

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environment, as well as the so-called minor crops, which may not be so minor to the people who grow and eat them, whether in the industrial or developing world. To ease the regulatory-cost burden for small businesses, universities, and researchers, government could waive certain fees. For example, the USDA's current IR-4 program, which helps register certain low-profit uses of pesticides, could be expanded to support "orphan" biotech applications. Furthermore, we need to expand aid programs to train scientists in developing countries, fund research stations, and help those nations build a regulatory structure to anticipate and prevent possible problems. In some of those countries, the need for careful regulation is particularly acute, because ancestral cultivars grow side by side with commercial varieties, making it difficult to prevent gene pollution of the traditional genotypes.

Organic farmers in the United States have justifiable fears that pollen from biotech farms will pollute their crops, possibly rendering them non-organic under the law. If an organic farmer saved his or her seed from year to year, it is easy to see how even 1% contamination per year by neighboring biotech crops would soon significantly decrease the purity of the seed. While the definition of "organic" does not specify allowable contamination levels, anything over a few percent would certainly begin to jeopardize the premium that organic food commands. Organic farmers also fear that insects will develop resistance to Bt toxin. While that concern was always present due to the use of that natural insecticide by organic farmers themselves, the widespread planting of Bt corn and cotton increases tremendously the possibility that pests will become resistant. I do not pretend to have the solutions to these tough problems, but they deserve careful attention. Buffer zones, compensation by seed companies, and other measures should be developed to protect the integrity of organic foods, without raising their prices even further.

## **BEYOND BIOTECHNOLOGY**

Let me conclude by noting that many critics of biotechnology are opposed to any and all of its applications, apparently regardless of its benefits. Advocates should not fall into a similar trap of thinking that biotechnology is the answer, regardless of the question. Genetic engineering is not the only tool in the agricultural toolbox. Conventional breeding and non-transgenic applications

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of biotechnology offer tremendous opportunity. We should also note that production agriculture, biotech or not, suffers from real problems. Many farmers are losing money and declaring bankruptcy. Many more would, were it not for huge government bailouts. Both advocates and critics of genetic engineering should recognize that the wisest course of action would be simultaneously to follow several paths to satisfy our food needs, making use of genetic engineering, conventional methods, and organic or sustainable approaches. Many farmers are discovering that sustainable agriculture, including organic farming—based on smaller farms, diverse crops, and natural means of pest control—may be just as profitable, or even more so. Their input costs may be lower, while their crops may command premium prices in the marketplace.

There are no big chemical or seed companies or government subsidies to support this approach to agriculture. Hence, my final recommendation would be for agricultural schools, the USDA, and state departments of agriculture to conduct more research and provide greater technical and financial assistance to farmers who want to get off the agribusiness treadmill.

Q: You mentioned the organic farmers and risks of contaminations. They have indicated only 100% organic, or zero percent contamination, is acceptable. Is it reasonable to think that anyone in today's agricultural environment in the United States can produce soybeans that are zero percent transgenic?

A: It may be possible in some areas of the country to produce 100% non-transgenic soy, but organic food does not have to be 100% organic. The Food and Drug Administration and the United States Department of Agriculture have called for an identity preservation system, with affidavits and so on, indicating that the intent of the farmer and the food system is to keep these products as pure as possible, but the government is not insisting that they be 100% organic with regard to pesticides or transgenics or other contamination. Food will not be declared non-organic if one kernel of Bt corn is in the crop.

Q: To what degree would you say previous interactions of consumers . . .  
[inaudible]

A: I think the bigger factors in consumer perceptions are the very effective criticisms by the opponents, who have created symbols that are very easy to understand: a dead monarch butterfly, for instance, or the term  *Frankenfood*, which are powerful means of communication. The advocates of biotechnology have not developed equally effective symbols—"fewer farmers poisoned by pesticides" for example. Proponents have not waged an effective campaign to educate the public. It amazes me that so few are talking about the benefits from reducing insecticide use, or herbicide use. The critics cannot bear to acknowledge that there are some benefits from biotech foods, even though these people are critical of pesticide use—they've been campaigning against them since Rachel Carson was around. So, the critics aren't talking about it, and, on the other hand, the companies can't talk about it because some of them make pesticides. For these companies, it is not a plus for pesticide sales to go through the floor. And the trade associations, which represent industry's lowest common denominator, cannot talk about these benefits. Somebody must contribute to the debate facts that demonstrate benefits to the public at large, maybe not as consumers, but out of concern for the environment. This is needed in Europe also. The advocates of biotechnology, the companies, the professors, consumer groups, etc., need to go to Europe and talk about how Europeans' insistence on non-biotech crops means that the American ecosystem will be more polluted, that more farmers will be harmed, and that more non-target insects and other species will be killed.

Q: With reference to your remarks on sustainability, were you implying that there is no role for genetic engineering in sustainable agriculture?

A: No. Genetic engineering can contribute to sustainability. Twenty years from now, organic farmers may be clamoring for genetically engineered crops that are beneficial and safe, and fit into their systems; they are not inconsistent.

Q: A key problem in Europe is that organic agriculture is striving for 100% zero tolerance of genetic engineering. Don't you think that organic agriculture has to come to terms with the fact that genetic engineering is part of agriculture, therefore they have to find a way to accommodate a threshold as they are doing for pesticides and herbicides?

A: They don't have to. If you are against genetic engineering, you'll want zero tolerance. It's a political decision. In the United States, a decision has been made that the test for organically grown foods will not be chemical; instead, it will be a paper trail. The government has not indicated a percentage, neither 0.1% nor 5%. The assumption is that it is a small fraction, and court cases may be needed at some point to decide what the percentage will be. The government has said *minimal* contamination—a little is okay.

Q: Something we have learned in the food industry is that you can sell an advantage that is directly linked to the product, but it is difficult to sell advantages that are far upstream in the process. You mentioned that the biotech industry has failed to draw attention to decreased pesticide use. In my opinion, even if they produce pesticides *and* GM crops that are resistant to these pesticides, if the biotech industry is unable or unwilling to articulate these advantages it will be extremely difficult to change the minds of the consumer.

A: Yes, it is pathetic that the industry itself can't do it. It could be that's life and we will not have genetically engineered foods for a period of years. The biotech industry needs to wake up. Companies like Monsanto that don't market most chemicals—obviously they market Roundup—that are adversely affected, need to speak out, and maybe the academic community and regulators need to talk to them and try to knock some sense into their heads. But ultimately, the technology may be lost for some years, or its use will be restricted to feed grains or fiber crops, like cotton, that don't enter the food chain.

Q: Does the CSPI provide informational hand-outs or brochures on educating the public on issues such as labeling?

A: We are just beginning to do this. We have had a couple of articles in our newsletter, the *Nutrition Action Healthletter*, which reaches 800,000 people, and we have had a couple of op-ed articles in the *Wall Street Journal* and other newspapers. We are beginning to reach out to the public via the usual Website, but it has to be much bigger than CSPI alone. We are hoping to serve as a nucleus around which groups that have a reasonable attitude may coalesce and call for sensible regulation of genetically engineered crops, portraying them neither as evil nor as a panacea. The big money lies with the food industry and the seed and chemical companies, and any mass-media efforts must come from them. If they are unwilling to mount a significant effort, they may see their market shrivel. The academic community could speak out more clearly, particularly in regard to calls for a better regulatory system. The public has had sufficient reassurances from professors who consult for the biotech companies and are less than totally believable—but they would have greater credibility if they called for tighter regulatory controls. Especially people at the University of Illinois because Senator Durban is very influential and very sensible.